REMARKS

I. Status of the Claims

Claims 1-9, 15 and 17 are currently pending in the present application, with claims 1 and 8 being independent. Claim 8 is currently amended to correct a minor editorial error (i.e., "a reference value" in the file limitation is changed to "the reference value"). It is respectfully submitted that, since this amendment does not alter the scope of the claims, it also does not raise a new issue(s).

Claims 10-12 and 16 were previously canceled and claims 13 and 14 are currently canceled without prejudice and/or disclaimer of the subject matter therein.

Claims 13 and 14 stand objected to under 37 CFR 1.75 for allegedly being duplicates of claims 5 and 6, respectively.

Claims 1-9, 13-15, and 16 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over U.S. Patent Application Publication No. 2003/0118876 ("Sugiura").

The Applicant respectfully requests reconsideration of the above rejections in view of the foregoing amendments and the following remarks.

II. Remarks Regarding the Objection to Claims 13 and 14

The Office Action objects to claims 13 and 14 for allegedly being duplicates of claims 5 and 6, respectively.

In view of the cancelation of claims 13 and 14, the Applicant respectfully requests withdrawal of these claim objections.

III. Remarks Regarding the § 103 Rejection of Claims 1 and 8

Independent claims 1 and 8 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Sugiura.

The Applicant respectfully submits that claim 1 is patentable over the cited references at least because it recites, in part, "a threshold value adjusting device ***for adjusting a reference value according to an output voltage of the fuel cell, such that the reference value decreases as the output voltage of the fuel cell decreases***." (emphasis added)

The Applicant respectfully submits that claim 8 is patentable over the cited references at least because it recites, in part, "wherein the reference value is adjusted by a threshold value adjusting device ***that adjusts the reference value according to an output voltage of the fuel cell, such that the reference value decreases as the output voltage of the fuel cell decreases***." (emphasis added)

It is respectfully submitted that the Office Action has used impermissible hindsight bias to reconstruct the claims of the present application. Further, the Office Action has failed to show how Sugiura teaches adjusting a reference value such that the reference value decreases as fuel cell voltage output decreases.

Nevertheless, the Office Action asserts that Sugiura renders claims 1 and 8 of the present application obvious. As discussed in *KSR Int'l Co. v. Teleflex Inc.*, it remains necessary to identify the reason why a person of ordinary skill in the art would have been prompted to combine alleged prior art elements in the manner as claimed. 550 U.S. 398, 418 (2007). Mere conclusory statements are insufficient. *Id.*; MPEP § 2143.01(IV).

One example of a fuel cell system in accordance with claim 1 of the present application includes a fuel cell, an electric power storing device (such as a secondary battery), and an electric power supplying device for supplying power from the fuel cell and storing device to a load. One objective of a system in accordance with this claim is to operate the fuel cell as efficiently as possible. In order to achieve this, the system supplies power to a load (such as the motor of a vehicle) either by an intermittent mode or a continuous mode. In the continuous mode, power is supplied to the load from the fuel cell (and, in certain circumstances, the power storing device). In intermittent mode, power is supplied to the load from the power storing device only.

A system in accordance with this claim may also provide a control device for determining when the system should switch between intermittent and continuous modes. For example, the control may dictate that the system will operate in intermittent mode (*i.e.* supplying power to the load from the storing device only) when both of the following conditions are met: (1) the amount of power required by the load is less than a reference value; and (2) the storing device has at least enough power remaining to meet this demand. When at least one of these conditions is not met, the system will operate in continuous mode (*i.e.* the fuel cell applies power to the load).

The reference value of condition (1) above may be a minimum value for efficient operation of a fuel cell. In other words, a fuel cell operating below this value would no longer be operating efficiently, and it is desirable to operate in intermittent mode. However, this value may change during operation of the fuel cell. For example, a reference value that is appropriate for a fuel cell that has been operating for a substantial amount of time may not be a proper benchmark for a fuel cell that has only been operating for a relatively short amount of time.

In order to more effectively determine an appropriate reference value, the system recited by claims 1 and 8 of the present application provides a threshold value adjusting device. One example of this device alters the reference value based on the voltage output of the fuel cell. As shown in Figure A below, this exemplary device decreases the reference (*i.e.* threshold) value as the voltage output (*i.e.* open circuit voltage) of the fuel cell decreases. Similarly, as the fuel cell's voltage output increases, the reference value increases.

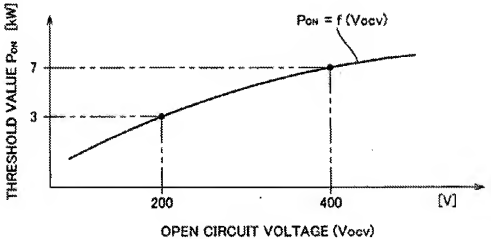

Figure A: FIG. 8 of the Published Application

Sugiura, on the other hand, discloses a power supply apparatus having a fuel cell and a capacitor. The apparatus also includes fuel cell mode determination means for determining when to operate in an "FC suspended mode" (similar to an intermittent mode) or a normal mode in which only the fuel cell supplies power. Sugiura's determination means measures a voltage from the capacitor and compares this voltage with a reference voltage. Based on this comparison, the determination means either opens or closes switches that connect the fuel cell to a load. As shown in Figure B below, Sugiura teaches altering the reference voltage based on the rate of

increase of the voltage of the capacitor (dV_c/dt). Note that, as shown in Figure C below and described in paragraph [0081] of Sugiura, the reference voltage increases as the capacitor voltage rate decreases.

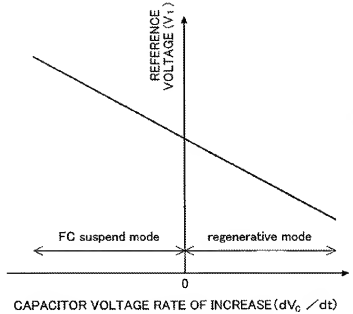

Figure B: FIG. 8 of Sugiura

Although Sugiura fails to teach varying a threshold value in accordance with an output voltage of a fuel cell, the Office Action alleges that it would have been obvious for one of ordinary skill in the art to do so. Specifically, the Office Action contends the following:

> [Sugiura] teaches that the reference value V_0 for use in the operating mode switching may be adjusted in accordance with a rate of change of an index that is different from the index which is to be compared with the reference value (paragraph 113). For example, the reference voltage V_1 (analogous to V_0) may be adjusted based on a rate of change of the output power level of the power supply apparatus according to their preset relationship, and the reference voltage V_1 may be compared with the capacitor voltage V_c (paragraph 113). The "preset relationship" of the power supply apparatus is equivalent to dP_{fc}/dt (rate of change of the output power level of the fuel cell) & dP_c/dt (rate of change of the output power level of the capacitor) as the power supply apparatus includes both the fuel cell and the capacitor (paragraphs 37 and 71).
>
> Therefore, as the reference voltage V_1 may be adjusted according to a rate of change of the output power level of the power supply apparatus (i.e., the change of the output powe level of both the fuel cell and capacitor), and the rate of change of the output power level is directly related to the rate of change of output power voltage [dP_g/dt =

> $(dV_{fc}/dt) * (dI_{fc}/dt)]$, and the rate of change of the output voltage (dV_{fc}/dt) is dependent directly no the actual output voltage of the fuel cell V_{fc} (dP_{fc}/dt is derived from the tangent line drawn from two points of the graph of voltage versus time), it would have been obvious to a person of ordinary skill in the art to adjust the reference value according to the output voltage of the fuel cell . . . .
>
> (Office Action at 10 – 11.)

Essentially, the Office Action argues that, because the rate of change of voltage output relates to voltage output, it would have been obvious to use voltage output as a variable for adjusting a reference value. Further, the Office Action argues that, because the reference discloses that the power supply apparatus may comprise a fuel cell and a capacitor, it would have been obvious to use a measured quantity from either to adjust a reference value, even though Sugiura itself only discloses using a measured quantity from the capacitor.

It is respectfully submitted that this reasoning amounts to nothing more than hindsight bias because the Office Action is using the teachings of the present invention to modify Sugiura to arrive at the present application's claims. There is nothing in Sugiura itself (or any other reference of record) that suggests this modification. Rather, the Office Action's lengthy analysis pushes the disclosure of Sugiura far beyond what one of ordinary skill in the art would consider to be taught therein. The Office Action has gone through great lengths to stretch the teaching of this reference to mimic the subject matter of the present application's independent claims. Such hindsight reasoning is impermissible. M.P.E.P. § 2145(X)(A) (prohibiting using knowledge "gleaned only from applicant's disclosure").

In addition, the Office Action has failed to indicate how Sugiura teaches decreasing a reference value as fuel cell voltage output decreases, as recited by the independent claims. At best, Sugiura teaches an inverse relationship between rate of change of capacitor voltage and a reference value. Nothing in the references of record suggests changing this inverse relationship.

For at least these reasons, the § 103 rejection of the independent claims is improper. Specifically, the Office Action has used impermissible hindsight bias to reconstruct the claims of the present application. Further, the Office Action has failed to show how Sugiura teaches adjusting a reference value such that the reference value decreases as fuel cell voltage output decreases.

IV. Conclusion

In light of the above remarks, the Applicants respectfully submit that the present application is in condition for allowance. The Applicants earnestly solicit favorable reconsideration and issuance of a Notice of Allowance.

The Examiner is invited to contact the undersigned at (202) 220-4420 to discuss any matter concerning this application. **The Office is authorized to charge any fees related to this communication to Deposit Account No. 11-0600.**

Respectfully submitted,

Date: September 14, 2010

By: /Daniel G. Shanley/
Daniel G. Shanley
(Reg. No. 54,863)

KENYON & KENYON LLP
1500 K Street, N.W., Suite 700
Washington, D.C. 20005
Telephone: (202) 220-4200
Facsimile: (202) 220-4201
Customer No. 23838